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U N I V E R S I T Y

O F

T O R O N T O

Faculty of Dentistry

Examinations

1956



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UNIVERSITY OF TORONTO  
FACULTY OF PHARMACY  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

PREPROFESSIONAL YEAR  
FIRST YEAR PHARMACY

ANTHROPOLOGY

*Examiner*—J. N. EMERSON

ANSWER ALL THREE QUESTIONS:

*Marks*

- 40 1. Define briefly the relevance of the following to your anthropology course:

Diplovertebron, stegosaurus, carnivore, homo rhodesiensis, Antevs, Croneis, Azilian, adaptive radiation, vestigial organ, lambda, lateral incisor, prepollex, Dinaric, calvarium, Villendorf Venus, ripple flaking, moko, stella, potlatch, Dr. Davidson Black, Chou Kou Tien, Piegan, Natchez, Ruth Benedict, Chilkat blanket.

- 30 2. "Evolution has ever been a struggle upward and onward." In the light of your studies of vertebrate evolution and fossil man, to what degree do you consider that evolution is a *struggle*, to what degree is it *upward*, and to what degree is it *onward* towards an ultimate goal? Cite evidence from the fossil record to support your view, and indicate whether you feel man can influence the developments taking place.

- 30 3. Outline briefly what we learn about the broad principles of human behaviour from a study of:

(a) the Palaeolithic period in Europe.

(b) the Alorese.

(c) the customs of selected North American Indian tribes.

You may find concepts such as ego-enhancement, social stratification, and the folk society-civilization concept useful in organizing your answer.





## Art and Archaeology

Annual Examinations, 1956

FIRST YEAR

ART AND ARCHAEOLOGY 1a, 1b

THE ART OF THE ANCIENT WORLD

Examiners - F. E. Winter  
J. W. Graham

FIVE questions constitute a full paper. 1a students must answer QUESTION 1, one of QUESTIONS 7 - 9, and ANY THREE others. 1b students must answer QUESTION 1 and ANY FOUR others.

1. Identify and date the monuments shown on the screen. Carefully tabulate your answers from 1 to 10 in the order of slides including any not identified.
2. Discuss the development of the Greek orders of architecture and their varying use in Greek and Roman buildings, as illustrated by the monuments studied in this course.
3. Compare and contrast the Parthenon and the Basilica of Constantine as characteristic architectural achievements of the Greeks and the Romans.
4. Discuss, with specific examples, the development in Greek sculpture between 600 and 350 B.C. of:
  - (a) the standing male figure
  - (b) drapery styles
5. Discuss the distinctive qualities of Greek and Roman art as illustrated by sculptures in relief.
6. Write on three of the following:
  - (a) Praxiteles
  - (b) the Propylaia
  - (c) Greek Council-Houses
  - (d) Greek and Roman theatres
  - (e) the Temple of Apollo at Corinth
  - (f) Myron
7. Write rather fully on two of the following:
  - (a) Corbel arches and vaults in Mycenaean architecture.
  - (b) Minoan and Mycenaean metalwork.
  - (c) The relationship of the wall-paintings of the Mycenaeans to those of the Minoans.

8. Discuss the development of Greek drawing and painting, pointing out when and how the principal changes took place.

9. (a) Explain the following:

1. "Geometric Age"
2. "Black glaze" in Greek ceramics
3. Lion Gate
4. Duris
5. Polygnotus
6. Kylix (or cylix)

(b) Compare a typical mosaic of the fourth century B.C., such as those found in the Villa of Good Fortune at Olynthos, with the "Alexander Mosaic" found in one of the houses at Pompeii.



UNIVERSITY OF TORONTO  
Faculty of Dentistry  
Faculty of Forestry  
Faculty of Pharmacy

Annual Examinations, 1956

FIRST YEAR - SECOND YEAR

ENGLISH COMPOSITION

Examiners: The Staff in English

In February, the Varsity conducted a poll of student opinion on various matters connected with higher education. Among the questions asked were the following:

1. What do you think the requirements for entrance to university should be?
2. What do you think of the Junior College idea?
3. Do you think technical and arts faculties should be on the same campus?
4. What do you think of the high school education university entrants receive?
5. What reforms would you propose in university and high school education?

In an essay of 750 to 1,000 words, present your answer to one of the above questions. Supply an appropriate title to the essay.





## English literature

UNIVERSITY OF TORONTO  
Faculty of Dentistry  
Faculty of Forestry  
Faculty of Pharmacy

Annual Examinations, 1956

FIRST YEAR - SECOND YEAR

ENGLISH LITERATURE

Examiners: The Staff in English

Answer FOUR questions, Question 1 (20 marks), two questions from Part B (30 marks each), and one question from Part C (20 marks).

Part A

1. Briefly (i.e., in one paragraph) comment on the significance of each of the following for an understanding of the work in question:

a) The Bastard's soliloquy at the beginning of Act I, Scene ii of King Lear ("Thou, Nature, art my goddess ...")

b) The periodic references to the wasp in A Passage to India.

c) The experience of Angel Clare prior to his meeting with Tess Durbeyfield at Talbothays Dairy.

d) Either the lines from "The Love Song of J. Alfred Prufrock,"

In the room the women come and go  
Talking of Michelangelo

Or the lines from "Lines, composed a few miles above Tintern Abbey,"

These beauteous forms,  
Through a long absence, have not been to me  
As is a landscape to a blind man's eye:

Part B

2. By comparing St. Joan to one (or more) of the other three plays studied, give your reasons for describing it as a tragedy, or as a comedy, or as a tragic-comedy.

3. a) To what extent is the reader made conscious of the presence of the author in two of the following novels: Joseph Andrews, Tess of the D'urbervilles, A Passage to India?

3. b) How does the degree of author intrusion in each case affect the reader's response to character and situation?

4. Discuss one of the following poems in the light of the poetic principles laid down by Wordsworth in his Preface to Lyrical Ballads: "Fra Lippo Lippi", "Journey of the Magi", "Ode: Intimations of Immortality."

### Part C

5. Discuss Swift's treatment of the Houyhnhnms and the Yahoos, with particular reference to his conclusions about the nature of human beings.

6. "To appreciate Butler's Erewhon, it is necessary to have a close familiarity with life as it was led in Victorian England." Discuss the validity of this statement.

7. During the past three months, two controversies have been reported at length in the daily newspapers. One has concerned a proposal to introduce television cameras into the Peterborough Post Office as a means of insuring that the workers are honest. The second has concerned the banning of Little Black Sambo from the Toronto public schools. Explain what John Stuart Mill's position would have been on either of these questions.

8. What distinction does Arnold draw between literature and belles lettres? Illustrate Arnold's distinction by reference to the qualities of one of the texts you have studied this year.





Trucks

UNIVERSITY OF TORONTO  
Faculty of Arts

Annual Examinations, 1956

FIRST YEAR

FRENCH 1a

(Write Parts A and B in separate books)

Part A

(Write in a separate book)

1. Translate into French:

John Oberlé; the son of an Alsatian industrialist, had just heard that his sister intended to marry a Prussian officer. Because of the scandal of this marriage John was afraid that Mr. Bastien would never allow him to see his daughter, Odile, again. She had been his childhood playmate and was the only girl he had ever loved. John decided therefore to leave Alsace and go to France. There he hoped to earn enough money to be able to send for Odile later.

30% The next day John got on the train without being noticed, changed his clothes in the compartment so that no one would realize he was a deserter, and found his uncle Ulrich waiting for him on his arrival at Russ-Hersbach. The alarm had been given, however, and the two men were chased for more than two hours by the German guards. They were forced to hide in a thicket until nightfall. Finally Mr. Ulrich said:

"Well, my boy, the time has come! I shall try to draw off the guards in the other direction. As soon as they are after me, run straight ahead to that village. Good luck and God bless you."

John had gone about one hundred meters when a shot rang out. Although he was wounded in the shoulder, he succeeded in crossing the border before he fainted.

2. Translate into English:

Les deux jeunes filles réapparurent aussi mystérieusement, aussi silencieusement qu'elles s'étaient évanouies. Elles s'assirent à table avec gravité. Elles avaient sans doute nourri leurs chiens, leurs oiseaux, ouvert leurs fenêtres à la nuit claire, et goûté dans le vent du soir l'odeur des plantes. Maintenant, dépliant leur serviette, elles me surveillaient du coin de l'œil, avec prudence, se demandant si elles me rangeraient ou non au nombre de leurs animaux familiers. Car elles possédaient aussi un renard, un singe et des abeilles.

10% Et je m'attendais bien à voir deux jeunes filles si vives porter sur moi un jugement rapide, secret et définitif. Dans mon enfance, mes soeurs attribuaient ainsi des notes aux invités qui, pour la première fois, honoraient notre table. Et, lorsque la conversation tombait, on entendait soudain, dans le silence, retentir un:

- Cinquante!

dont personne, sauf mes soeurs et moi, ne goûtait le charme.

Part B  
(Write in a separate book)

3. How do the ambitions of Monsieur Jourdain blind him to his duties as a "père de famille"?

15%

OR

Write a note on *Le Bourgeois gentilhomme* under ONE of the following headings:

- (a) Comic devices
- (b) Social satire
- (c) Character of Monsieur Jourdain.

4. Translate into English, and answer briefly the questions that follow:

Tout ce qui était encore sur l' amphithéâtre et dans le cirque le reçut avec des huées. On l' entourait; on lui insultait en face. Jamais homme n' essaya des mortifications si humiliantes. La patience lui échappa; il écarta à coups de sabre la populace qui osait l' outrager; mais il ne savait quel parti prendre. Il ne pouvait voir la reine; il ne pouvait réclamer l' armure blanche qu' elle lui avait envoyée; c' eût été la compromettre: ainsi, tandis qu' elle était plongée dans la douleur, il était pénétré de fureur et d' inquiétude. Il se promenait sur les bords de l' Euphrate, persuadé que son étoile le destinait à être malheureux sans ressource, repassant dans son esprit toutes ses disgrâces depuis l' aventure de la femme qui haïssait les borgnes, jusqu' à celle de son armure.

10%

2%

(a) What was the outcome of the episode "de son armure"?

3%

(b) Tell the story of any ONE of the "disgrâces" which occur between the adventure of "le borgne" and "celle de son armure".

5. "Maupassant excels in plot-structure, Flaubert in character-analysis". Discuss this statement with reference to the stories you have read.

15%

OR

Write a short character sketch of the following:  
Bethine, Victor, le père Merlier.

6. DO NOT TRANSLATE. Identify (author and title of poem) THREE of the following quotations, and briefly show the relation of each to the central theme of the poem from which it is taken.

(a) Gardez de cette nuit, gardez, belle nature,  
Au moins le souvenir!

(b) Eh bien! oubliez-nous, maison, jardin, ombrages;  
Herbe, use notre seuil! ronce, cache nos pas!  
Chantez, oiseaux! ruisseaux, coulez! croissez, feuillages!  
Ceux que vous oubliez ne vous oublieront pas.

15%

(c) Fais énergiquement ta longue et lourde tâche  
Dans la voie où le sort a voulu t' appeler,  
Puis, après, comme moi, souffre et meurs sans parler.

(d) A peine les ont-ils déposés sur les planches,  
Que ces rois de l' azur, maladroits et honteux,  
Laissent piteusement leurs grandes ailes blanches  
Comme des avirons traîner à côté d' eux.



General Chemistry



UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

PREPROFESSIONAL YEAR

CHEMISTRY 108  
GENERAL CHEMISTRY

*Examiner—J. J. RAE*

Slide rules may be used. Logarithm cards will be supplied.

1. (a) State the law which is usually associated with each of the following chemists:

Faraday, Cannizzaro, Le Chatelier.

(b) What classes of materials are homogeneous? By what criteria may they be further subdivided? Give examples to illustrate your answer.

2. (a) A saturated solution of magnesium sulphate heptahydrate at  $20^{\circ}$  contains 35.0 grams of anhydrous magnesium sulphate per 100 grams of water. Calculate the grams of magnesium sulphate heptahydrate ( $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ ) required to make one kilogram of a saturated solution. The density of this saturated solution is 1.30. Calculate the molarity of the solution. ( $\text{Mg} = 24$ ,  $\text{S} = 32$ )

(b) Distinguish between the terms strong and concentrated as applied to acids.

3. (a) State and explain Graham's law of gaseous diffusion and show how it can be used to calculate molecular weights of gases.

(b) Define the following terms. Give examples.

- (i) deliquescent solid,
- (ii) critical pressure,
- (iii) colligative properties of solutions,
- (iv) molecular crystal.

4. (a) Calculate the molecular weight of naphthalene from the fact that a solution of naphthalene in benzene containing 26.6 grams per 200 grams of benzene has a freezing point of  $0^{\circ}$ . The molecular depression of the freezing point constant for benzene is 4.9. The freezing point of benzene is  $+5.1^{\circ}$ .

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(b) Explain the meaning of the following terms. Give examples.

- (i) electrolysis,
- (ii) additivity principle,
- (iii) peptizing agent.

5. (a) Write a descriptive note on salts under the following headings:

- (i) normal, acid and basic salts,
- (ii) hydrolysis of salts,
- (iii) complex, double and mixed salts.

(b) Give the name and formula for an example of each of the following:

- (i) monatomic gas,
- (ii) weak dibasic acid,
- (iii) bleaching agent,
- (iv) amphoteric oxide.

6. (a) Calculate whether or not a precipitate of magnesium hydroxide will form when 2 ml. of 0.001 M magnesium chloride (completely ionized) is added to 48 ml. of a sodium hydroxide solution which has a pH of 9.0. The solubility of magnesium hydroxide is 0.0016 g. per 100 ml. of water at 18°. ( $\text{Mg} = 24$ ,  $\text{Cl} = 35.5$ )

(b) Explain what is meant by the following terms. Give examples.

- (i) electromotive series,
- (ii) radioactive tracers,
- (iii) variable ionic valence.

7. (a) Write a descriptive paragraph on *any two* of the following topics:

- (i) alloys,
- (ii) water softening and purification,
- (iii) ceramic industries.

(b) Define and give an example of each of the following:

- (i) allotropes,
- (ii) flux,
- (iii) abrasive,
- (iv) electronic formula.



mathematics

UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

PREPROFESSIONAL YEAR

MATHEMATICS

1. (a) Find  $\frac{dy}{dx}$  in the following,

$$y = (x - a)^{\frac{1}{2}} (x + a)^{-\frac{1}{2}} e^{bx}$$
$$x^2 + 2x \sin y + y^2 = 0.$$

- (b) Let  $y = e^\theta$ ,  $z = \sqrt{\cosh 2\theta + \sinh 2\theta}$ .

Show that  $y$  is identical with  $z$  by showing that they both satisfy the differential equation

$$\frac{dx}{d\theta} = x$$

and have the same value at  $\theta = 0$ .

2. (a) Integrate  $\log \sqrt{1 - x^2}$ .

(b) Consider the curve  $y = \cosh x$  and the solid of revolution formed by rotating it about the  $x$  axis. Show that the number of square feet in its surface area between  $x = 0$  and  $x = x_1$  is twice the number of cubic feet in its volume.

- (c) Establish a recursion formula for  $I_n = \int \tan^n x dx$  ( $n > 1$ ).

3. (a) What are the conditions for a maximum and a minimum value of a continuous function  $y = f(x)$ ?

(b) Consider a projectile fired from the origin with velocity  $v_0$  at an angle  $\alpha$  with the positive  $x$  axis. If the laws of motion are

$$\frac{d^2x}{dt^2} = 0 \text{ and } \frac{d^2y}{dt^2} = -g, \text{ show that the area under its trajectory}$$

is given by  $\frac{2}{3} \frac{v_0^4}{g^2} \cos \alpha \sin^3 \alpha$ .

- (c) What is the angle  $\alpha$ , that will maximize this area.

4. Show that the length of the tangent to the curve  $x^{2/3} + y^{2/3} = a^{2/3}$  which is cut off by the coordinate axes is a constant and equals " $a$ ". Show also that the total length of the curve is  $6a$ .

5. Eight regular tetrahedra, with faces numbered one to four, are thrown. Find the probability that the sum appearing is nine. Find also the chance that, if one tetrahedron is thrown six times, the face numbered two will show exactly three times.



6. A table has six numbered squares. A player bets one dollar on one of the numbers. Three dice are thrown. If the number backed by the player appears once, twice, or three times, he receives his dollar plus one, two or three dollars respectively. Otherwise, he loses. Show that the player is at a disadvantage and calculate how much he should be paid to enter the game if there is to be no advantage.



UNIVERSITY OF TORONTO

Faculty of Dentistry - Pre Professional Year  
Faculty of Forestry - First Year

Christmas Examination - 2.00 p. m., November 23, 1955

PHYSICS

Examiner - J. C. Strijland

1. It is desired to make a copper disc 4.000 cms. thick and having a mass of 10 Kg  $\pm$  10 grams. Calculate the diameter of the disc and its permissible error.

Density of Copper - 8.937 gm/cm<sup>3</sup>

$\pi$  = 3.14159

2. An object falls from an aeroplane that is flying horizontally at a uniform velocity and at a height of 490 metres.

(a) Calculate the time for the object to reach the ground. Neglect air friction.

(b) Where will the aeroplane be with respect to the object when the object reaches the ground?

(c) If the object strikes the ground at an angle of 45 degrees, what is the speed of the aeroplane?

3. A particle of mass  $m$ , after being at rest at a point P moves under the influence of a constant force  $F$  in a straight line to a point Q at a distance  $s$  from P.

(a) Express in terms of  $m$ ,  $F$  and  $s$  the momentum and the kinetic energy of the particle when it arrives at Q.

(b) How would question (a) and the answers to it be modified for the rotational movement of a mass  $m$  attached to one end of a string of length  $r$  and whirled about a point at the other end of the string?

4. Describe the essential features of one experiment which you did in the physics laboratory during the past 8 weeks. What suggestions could you make for modifying the experiment to improve the final precision?

5. Describe what happens when a load suspended by a metal wire is gradually increased until the wire breaks.

6. What subjects, principles, and laws of "Mechanics" are connected with riding a bicycle?



# Physics

UNIVERSITY OF TORONTO

FACULTY OF PHARMACY

ANNUAL EXAMINATIONS, 1956

FACULTY OF DENTISTRY, PRE-DENTAL YEAR

FACULTY OF FORESTRY, FIRST YEAR

FACULTY OF PHARMACY, SECOND YEAR

PHYSICS

*Examiner—J. C. STRIJLAND*

*Candidates may use Clark's Tables and slide rules.*

1. The electrical resistance of platinum varies with temperature according to the formula  $R_t = R_0(1 + \alpha t)$  with  $R_0$  and  $R_t$  being the resistance at respectively  $0^\circ \text{C}$  and  $t^\circ \text{C}$ , whereas  $\alpha$  is a constant (about 0.004).

(a) How can this effect be used to measure temperatures?

(b) A reasonable value for the resistance at  $0^\circ \text{C}$  of such a platinum thermometer is 25 ohms. What length and diameter of platinum wire would you suggest to use?

(c) How would you obtain the value of  $\alpha$ ?

2. A hydraulic press consists of two vertical cylinders filled with oil and connected by a tube. In each cylinder a piston of negligible weight can move without friction. The diameters of the pistons are 5 cm and 25 cm respectively.

(a) What happens when equal loads are placed on both pistons?

(b) What force has to be applied on the small piston in order to lift a load of 10,000 kilograms on the large piston?

(c) In case (b) what is the pressure in the oil?

(d) When the small piston is being rapidly pushed down, where in the system will the pressure be highest and where lowest?

3. (a) Define a simple harmonic vibration.

(b) Describe the physical character of the vibrations taking place in the case of sound waves, light waves and alternating electric current.

(c) A short wave radio station broadcasts at 30 metres. Find a reasonable set of values for capacitance and inductance of its oscillating circuit.

(d) The sodium  $D$  line is found in the sun's spectrum at 5893 angstroms. What is the wavelength of the same light in water?



4. Describe briefly J. J. Thomson's experiments with cathode rays and Millikan's experiment with oil drops. Show how these experiments lead to the determination of the mass of the electron.

5. An intense neutron beam can be produced by bombarding beryllium with deuterons. The following nuclear reaction takes place:



When the deuterons are given an energy of 7 Mev, the neutrons will shoot off with about 10 Mev and the boron nuclei will have about 1 Mev.

(a) Explain and verify the apparent discrepancy in the energy balance.

(b) Calculate the velocity of the deuterons with an energy of 7 Mev.

Should the relativistic mass of the deuterons be considered at such a speed?

DATA YOU MIGHT WANT TO USE

Resistivity of platinum.....	$11 \times 10^{-8}$ ohm metres
Velocity of electromagnetic waves in vacuum	$3 \times 10^8$ metres/second
Refractive index of water.....	1.33
Mass of the electron.....	$9.1 \times 10^{-31}$ kg
Charge of the electron.....	$1.6 \times 10^{-19}$ coulomb
Mass of the proton.....	$1.7 \times 10^{-27}$ kg
Atomic weight of neutron.....	1.0090
Atomic weight of deuteron.....	2.0147
Atomic weight of $\text{Be}^9$ .....	9.0150
Atomic weight of $\text{B}^{10}$ .....	10.0163



UNIVERSITY OF TORONTO

FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

PREPROFESSIONAL YEAR

ZOOLOGY

\*THE FIRST QUESTION IS TO BE ANSWERED IN A  
SEPARATE BOOK.

1. Prepare a fully labelled diagram of the medial surface of the mandible of the rabbit to show the points of insertion of the muscles and indicate the position of related structures.

2. What advantages to the animal can be credited to the development of the body plan in a Coelenterate as contrasted with a Protozoan?

3. (a) By diagrams compare and contrast the respiratory organs of a fish and the frog.

(b) How do each meet the fundamental requirements of an efficient respiratory system?

4. *List* the functions of the vascular system of the mammal. How is cardiac output controlled?

5. Two black female mice are crossed with a brown male. In several litters female 1 produced nine blacks and seven browns; female 2 produced seventeen blacks. What deductions can you make regarding inheritance of black and brown coat colour in mice? What are the genotypes of parents and offspring in these cases?



UNIVERSITY OF TORONTO

FACULTY OF DENTISTRY

ANNUAL EXAMINATION—MARCH, 1956

FIRST DENTAL YEAR

COMPARATIVE DENTAL ANATOMY

1. How do the food prehensive organs of a teleost fish differ from those of Amphibians.
2. Describe briefly the evolution of jaws of vertebrates.
3. Write a short note on each of the following:
  - (a) Ostracoderms
  - (b) Teeth in Cyclostomes
  - (c) The dentition of Perissodactyl Ungulates
  - (d) Carnassial teeth of carnivores.
4. "Many invertebrates are capable of supplying their needs of food and energy without utilizing hard materials in food prehension". Explain the meaning of this statement and give examples from the different phyla where it applies.





UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

FIRST DENTAL YEAR

GROSS ANATOMY

Time allowed: 2½ hours.

1. Name the four parasympathetic ganglia found in the head, and describe the course and distribution of the postganglionic fibres from each.

2. Give an account of the origin, course and relationships of the superior dental nerves.

3. Write short notes on:

(a) The vocal cords

(b) The sublingual gland

(c) The inferior thyroid artery

4. Give an account of the development of the upper lip, upper alveolar processes, and hard palate.

5. (a) Describe the bicuspid (mitral) atrioventricular valve of the heart.

(b) Describe the arrangement of the gall bladder and of the bile passages outside of the liver (or make a large diagram of these structures and label fully).



UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY  
ANNUAL EXAMINATIONS, 1956  
FIRST DENTAL YEAR  
MICROSCOPIC ANATOMY

*Note: (a) Use separate examination books for PARTS A and B.  
(b) Answer all three questions in PART A, and answer any two of the three questions in PART B.*

*Marks*

PART A

- 20 1. Make a chart showing the various types of epithelial tissue found in the body, and make a labelled diagram of each of the types in your terminal classification.
- 20 2. Describe, and illustrate with drawings, the pars anterior of the pituitary gland. *List* the hormones secreted by this portion of the pituitary and state the functions of each.
- 20 3. Describe, and illustrate with drawings, the various types of blood vessels of the vascular system, and relate the structure of each to its function.

PART B

- 20 4. Describe the vascular, sensory, and cellular components of the periodontal membrane. Explain how the normal relation of the tooth to the surrounding hard and soft tissues is maintained.
- 20 5. Describe the microscopic structure of the bone of the alveolar process, and tell the changes that occur in this bone during physiologic tooth movements.
- 20 6. Describe the cellular and extracellular components of dentin. Explain the changes that occur in dentin during aging.



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UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

FIRST DENTAL YEAR

ORAL ANATOMY

1. What is an acquired variation in tooth morphology? List five factors which might cause an acquired variation in teeth and tell how each exerts its effect.

2. (a) Draw the mesial aspect of the upper right first premolar of an individual twelve years old. Indicate the outline of the pulp cavity.

(b) Make a similar drawing of the same tooth of an individual fifty-five years old. Again outline the pulp cavity.

(c) List the differences that you have made in the two drawings and tell why they have occurred.

3. (a) Tell how the necessary extra space is provided in the dental arch for the upper permanent anterior teeth as they erupt.

(b) If a boy 10 years old presents himself at your office for examination and you find the following teeth present in his mouth

$$\frac{76ed321/123de67}{76ed321/123de67}$$

would you consider this arrangement normal? If not, why not? At what age should this boy have all his permanent teeth erupted (except the third molars)?

4. (a) What is meant by the term 'centric occlusion'?

(b) In an ideal dentition closed in centric, describe the relation of the lingual cusps of the upper left bicuspid and molars to the lower teeth (omit the third molars).

5. (a) What purposes does the periodontal membrane serve?

(b) Briefly discuss the role of the temporo-mandibular joint during mastication.





NAME.....

UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY  
ANNUAL EXAMINATIONS, 1956  
SECOND DENTAL YEAR  
BACTERIOLOGY

*Answers are to be made on this examination paper in the spaces allotted.  
Read the questions carefully and proceed through the examination in order,  
so that you do not miss any parts of it.*

marks

10 1. Mark a plus (+) in the spaces in the accompanying table where the statement at the left applies to the group of disease agents given. Where the statement does not apply, leave the space blank.

	Fungi	Viruses	Bacteria
Cell or particle size usually falls within the range 8 to 500 millimicrons			
Several members of the group have been isolated in crystalline form			
Growth on agar surfaces frequently characterized by masses of aerial hyphae			
Members of this group frequently have chitin in the cell walls			
A representative of this group produces low grade chronic oral infection characterized by white membranous patches, in debilitated children			
A member of this group is responsible for a venereal infection in which the diagnosis is sometimes made by darkfield examination			
The primary pathological effect of infection by a member of this group is degeneration or stimulation of infected cells			
Some members of this group are composed of apparently pure nucleoprotein			
Members of this group cause infection of the oral cavity of man			
Members of this group can be cultivated in cell-free media			

16 2. Indicate by number in the spaces below, using more than one number, if appropriate, which of the general methods listed at the left are regularly used for diagnosis of the conditions given at the right.

- |  |                                    |
|--|------------------------------------|
| (1) Agglutination with known serum           | ..... carrier of diphtheria        |
| (2) Agglutination with patient's serum       | ..... susceptibility to diphtheria |
| (3) Precipitation with known serum           | ..... typhoid fever                |
| (4) Complement-fixation with patient's serum | ..... early primary syphilis       |

Marks

- (5) Skin reaction

late syphilis
- (6) Throat culture

active tuberculosis
- (7) Blood culture

susceptibility to scarlet fever
- (8) Stool culture

gonococcal infection
- (9) Morphology in stained smear

pneumococcal pneumonia
- (10) Morphology in fresh preparation

an epidemic of streptococcal pharyngitis
- (11) Guinea pig inoculation
- (12) Mouse inoculation

20      3. Mark a plus (+) sign in appropriate spaces in the following table. Leave other spaces blank.

\*Note *re* last two columns—Prophylaxis = Application before appearance of disease.  
Therapy = Application after disease has appeared.

	Frequent means of transmission					* Prophylaxis by active immuniz. <i>widely</i> used	* Effective therapy with serum, penicillin sulfonamides
	Air- borne or droplets	Insects	Water or food	Direct contact <i>only</i>	Contami- nation of traumatic wounds		
<i>M. tuberculosis</i>							
<i>Cl. perfringens</i>							
<i>Cl. tetani</i>							
<i>S. typhi</i>							
<i>Shigella dysenteriae</i>							
Smallpox virus							
Common cold virus							
Rabies virus							
<i>Treponema pallidum</i>							
<i>Pasteurella pestis</i>							

10      4. Read each section carefully before beginning to write. If you do not know the answers in any instance, do not guess, leave the space unmarked.

Mark a plus (+) sign in the appropriate blank spaces.

- (1) A disease is regarded as being due to a filterable virus when:

..... it cannot be reproduced in animals

..... it can be transmitted to animals with bacteria-free material

..... bacteria found in the lesions cannot be cultivated

..... bacteria cultivated from the lesions show a life cycle with a filterable stage
- (2) Negri bodies occur in:

..... encephalitis

..... smallpox

..... rabies

..... poliomyelitis



- (3) Structures characteristic of many virus diseases are called:
  - ..... chromosomes
  - ..... inclusion bodies
  - ..... haptenes
  - ..... spores
- (4) An agent capable of transmitting the following disease has been obtained in crystalline form:
  - ..... influenza
  - ..... common cold
  - ..... herpes labialis
  - ..... tobacco mosaic disease
- (5) Vaccination with live virus is used to prevent the following disease:
  - ..... poliomyelitis
  - ..... rabies
  - ..... smallpox
  - ..... measles

12      5. Fill in the blanks in the following table by stating briefly with reference to each of the reactions named:

- (a) The name of the disease to which the reaction is related.
- (b) The significance of a positive reaction.

Reaction	A. Disease	B. Significance of positive
Schick		
Tuberculin		
Dick		
Kahn flocculation		

10      6. Read the following excerpt carefully, then answer the questions below which are based on it.

“The high degree of specificity and the great sensitivity of serological reactions make it possible to distinguish between and to identify different proteins or polysaccharides by means of precipitin tests. Nuttall tested blood sera from numerous animal species with immune rabbit sera and showed the reaction to be strongest with the kind of serum used for immunization while with other sera the intensity of reaction was found to parallel the degree of zoological relationship. Heidelberger and Landsteiner found that a rabbit antiserum to crystalline horse hemoglobin gave a cross reaction only with donkey hemoglobin. A variety of other hemoglobins from less closely related species were inactive or only slightly active toward this serum.”

(1) If a rabbit was immunized with chicken serum, with which of the following sera would the rabbit serum react most strongly? (Indicate with a plus (+).)

- Horse serum.....
- Human serum.....
- Rabbit serum.....
- Duck serum.....

(2) What kind of a reaction should occur if the above immunized rabbit serum were layered over the chicken serum? Indicate with a plus (+).

- ..... agglutination
- ..... precipitation
- ..... complement fixation
- ..... neutralization

Indicate the appropriate answer with a plus (+).

- (3) Is horse hemoglobin:
  - Antigenic.....
  - Toxic.....
  - An antibody.....
  - A polysaccharide.....

10

7. Underline the *one* most important word or phrase in each of the following groups:

(1) The natural habitat of the genus *Clostridium* seems to be

air  
water  
soil }

(2) Several species of *Clostridia* are commonly found in human or animal

mouths  
intestines  
vagina }

(3) *Clostridium tetani* differs from *Bacillus anthracis* in that the former is

pathogenic  
encapsulated  
anaerobic }

(4) Pathogenic staphylococci can be distinguished from pathogenic streptococci in that the former

are gram positive  
elaborate coagulase  
hemolyze blood agar }

(5) Exotoxins differ from endotoxins in that the former:

are not neutralizable with formalin  
can be suitably modified for use in active immunization  
are characteristic of gram negative organisms

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8. A three year old child is seen with an acutely sore mouth, inflammation of the margins of the gingivae, shallow ulcers on the tongue, gingivae and buccal mucosa, a temperature of 103° F.

What is the most probable etiologic agent.....

What serological test could be used to confirm the diagnosis.....

What would be the distinguishing feature of tissue from one of the lesions examined microscopically.....

How long will the disease probably last.....

What is the most important aspect of treatment.....

How can the soreness of the mouth be best alleviated.....



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UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

SECOND DENTAL YEAR

BIOCHEMISTRY

*Examiner*—J. MANERY FISHER

*Answer only FOUR questions—the FIRST question and any other THREE.*

1. Show how a hypothetical substrate,  $AH_2$ , can be oxidized by the anaerobic dehydrogenase redox chain. Describe briefly the chemistry of each component of the system, pointing out the properties which make it suitable to carry out its function.

2. Write a concise account of energy metabolism in man under the following headings:

(a) Basal metabolic rate; its meaning and the factors which influence it.

(b) Methods of estimating the daily caloric requirement of man.

(c) Effect on metabolism of (i) food  
(ii) temperature  
(iii) occupation.

3. Describe the fate of amino acid nitrogen under the following headings:

(a) Processes by which it is removed from the amino acid.

(b) Our present concept of the method of incorporation of the amino acid nitrogen into urea.

4. (a) Show the structure of coenzyme *A* and describe briefly its discovery.

(b) Write the formula of pyruvic acid. Name *three* different types of compounds from which pyruvic acid is formed.

(c) Describe *two* chemical reactions in the oxidation of pyruvic acid which involve coenzyme *A*.

5. (a) Applying the Mass Law to the dissociation of a weak acid, develop the Henderson-Hasselbach equation which describes the hydrogen ion concentration of a buffer mixture.

(b) What is meant by the alkali reserve? Describe the buffering in the plasma of the carbonic acid: bicarbonate buffer system.

6. Write a short account of the oxidation of fatty acids.





UNIVERSITY OF TORONTO  
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ANNUAL EXAMINATIONS, 1956

SECOND DENTAL YEAR

OPERATIVE DENTISTRY

*All questions have equal marks. Illustrate wherever possible.*

1. Define and discuss briefly
  - (a) Operative Dentistry
  - (b) Cavo-surface angle
  - (c) Bevel
  - (d) Convenience form
  - (e) Contour.
2. Compare silver amalgam and gold inlays under the following headings:
  - (a) Metallurgical Properties
  - (b) Indications
  - (c) Cavity Preparation.
3. (a) Give as many instances in your operative experience, where a knowledge of enamel rods, their depth and structure, has been helpful to you.  
(b) It has been said that the gold foil restoration is the finest possible training in operative technique. Discuss and illustrate wherever possible the veracity of this statement.
4. List the steps in the preparation of a three-quarter gold crown on a lower first bicuspid to be used as a bridge abutment. Enlarge upon each step and illustrate the reasons for each.



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UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

SECOND DENTAL YEAR

PHARMACOLOGY

*Write plainly. Up to 5 marks will be added for neatness, legibility and concise answers.*

*Marks*

- 15     1. Describe briefly the pharmacology of Codeine, Metrazol, and Pentobarbitone.
- 15     2. Describe the action of two drugs which, acting in a different manner, may be employed to stimulate a copious salivary flow. Indicate what other responses could be expected when these drugs are administered in ordinary dosage.
- 16     3. Discuss the action of Adrenalin as an emergency drug in circulatory failure, pointing out the sites and modes of its action.
- 15     4. Discuss the action of Nicotine and of Atropine on the autonomic nervous system.
- 13     5. What use is made of antipyretics in dentistry? Briefly discuss two in common use, indicating their mode of action and any toxic effects that might arise from overdosage.
- 6     6. Prescribe:  
      (a) A dental abrasive paste for office use, containing Powdered Pumice 240 parts, Glycerite of Starch 360 parts, Methyl Salicylate and Oil of Clove, of each 5 parts, Carmine 2 parts.
- 6     (b) Ten capsules of Sodium Pentobarbitone 100 mg. each, for a patient.
- 9     7. Give synonym and common dosage forms and modes of administration of Hyoscine Hydrobromide, Amphetamine, Sodium Phenobarbitone.



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FACULTY OF DENTISTRY  
UNIVERSITY OF TORONTO

ANNUAL EXAMINATIONS, 1956

SECOND DENTAL YEAR

PHYSIOLOGY

*Answer questions 1 to 4, and 5 OR 6.*

1. (a) Give a scheme to show the processes occurring in the clotting of blood.

(b) Explain the action of the forces that are concerned in the return of blood to the heart.

2. Show how localized or generalized oedema may result from an alteration in each of four major factors that are involved in the interchange of fluid between the blood and the tissues.

3. Discuss the role of mastication in the digestive processes.

4. (a) Outline the means whereby the rate and depth of respiration are controlled.

(b) Briefly describe five characteristics of spinal reflex activity.

5. Outline

(a) The means whereby the adrenal medulla may be stimulated to secrete.

(b) The effects that may result from stimulation of the adrenal medulla.

OR

6. Outline the effects produced by removal of the pancreas.





# Accounting

UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

THIRD DENTAL YEAR

DENTAL NURSING

PRINCIPLES OF ACCOUNTING

*Marks*

- 25      1. Prepare a balance sheet for the McLain Trucking Company, owned by William N. McLain. Date the balance sheet September 30 of this year. On that date Mr. McLain's records showed the following assets and liabilities:
- (a) Cash, \$1,757.30
  - (b) A. M. Hartwell (a customer), \$50
  - (c) L. S. Jones (a customer), \$75
  - (d) Office Furniture, \$150
  - (e) Trucking Equipment, \$4,575
  - (f) Glenn Service Station (a creditor), \$1,530
  - (g) Motor Equipment Company (a creditor), \$60.12
- 75      2. Dr. J. O. Bosworth, dentist, maintains a bookkeeping system similar to the one we have been using. All payments were made by cheque, the first cheque for December 1 being No. 202. The transactions completed by Dr. Bosworth during December were:
- December
- 1. Paid the December rent, \$100
  - 3. Paid Physicians' Linen Service Company \$5.25 for linen service.
  - 4. Paid telephone bill, \$5.75
  - 5. Paid X-Ray Sales Company \$50 on Furniture & Fixtures Account.
  - 7. Deposited \$233, the receipts for the past week.
  - 8. Withdrew \$100 for personal use.
  - 9. Paid Johnson Drug Company \$25 for dental supplies.
  - 14. Deposited \$178.50, the receipts for the past week.
  - 15. Paid Joan Blythe, dental nurse, her semimonthly salary of \$90 less deductions of \$7.60 for income tax withheld and 90 cents for unemployment insurance.

- 85
17. Replenished the petty cash fund with a cheque for \$37.25. The distribution was as follows: Dental supplies, \$12.35; Automobile Expense, \$15.93 (charge to withdrawals); Office Supplies, \$4.87; General Expense, \$4.10
  19. Paid Wilson Stationery Company \$12.75 for letterheads.
  20. Paid Hydro bill \$6.50; Consumers' Gas Company \$4.50
  21. Paid Willis Furniture Company \$18.50 for refinishing desk. Deposited \$194.75, the receipts for the past week.
  22. Withdrew \$100 for personal use.
  24. Paid Smith Dental Company \$13.85 for dental supplies.
  25. Paid Harris Laboratories, \$30 for services rendered (Charge Laboratory Expense.)
  26. Deposited \$138.50, the receipts for past week.
  31. Paid Joan Blythe her semimonthly salary of \$90 less deductions of \$7.60 for income tax withheld and 90 cents for unemployment insurance. Personal withdrawal of \$100; deposited \$308, the receipts for past week. Replenished the petty cash fund with a cheque for \$39.95. The distribution was as follows: Dental Supplies, \$21.30; Office Supplies, \$17.55; Miscellaneous Expense, \$1.10
- Estimated dental supplies used: \$50  
Depreciation on Equipment: 30  
Bank Balance as of December 1, \$854.30  
Keep supplementary ledger for payroll



UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

THIRD DENTAL YEAR

DENTAL SURGERY AND ANAESTHESIA

*Marks*

- 25 1. List the points you would consider in the diagnosis and treatment planning of an abscessed maxillary central incisor requiring root resection. Describe the surgical technique and local anaesthesia administration.
- 20 2. Under local anaesthesia, how would you go about removing a maxillary right first permanent molar with widely divergent roots?
- 10 3. A given local anaesthetic agent contains Moncaine HCl, Epinephrine, Sodium Bisulfite, Sodium Chloride and Distilled water. Give the exact amounts of these items required to make 1 cc. of 1½% solution and explain the function of each in the solution.
- 25 4. Make a chart showing the various stages and planes of general anaesthesia and indicating the respiration, eye, and reflex signs associated with each.
- 20 5. What questions should one ask a patient in ascertaining sufficient history if the patient is to undergo dental surgery (a) under local anaesthetic, (b) under general anaesthetic?





Nutrition and Preventive Dentistry

UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

THIRD DENTAL YEAR

NUTRITION AND PREVENTIVE DENTISTRY

*The first four questions are to be answered, and two (only) of the remaining four.*

*Marks*

- 15      1. Describe two or more types of food in each of the food groups listed in Canada's Food Rules comparing their nutritive values and relative cost.
- 20      2. (a) Define:  
              (1) Metabolism  
              (2) Basal metabolism  
              (3) Nutrient  
              (4) Food.  
          (b) How are the following determined:  
              (1) Basal metabolism  
              (2) Total metabolism  
              (3) Protein requirement.
- 15      3. What vitamins are known to be essential in human nutrition? Name and describe briefly.
- 10      4. (a) *List* the major organic constituents of  
              (i) Dentin, and (ii) Enamel.
- 10      (b) Discuss the significance of the hydroxyapatite crystal lattice in relation to the inorganic composition of teeth.
- 2      5. (a) What is the major buffer system in saliva?
- 2      (b) What is the origin of ammonia in saliva?
- 6      (c) (i) Name two enzymes found in saliva obtained by a canuli direct from a salivary duct. What is their action?  
              (ii) Name two enzymes derived from bacteria which are found in 'resting' saliva. What is their action?
- 5      (d) What is the significance of calcium and phosphorus in saliva in maintaining the integrity of dental tissues?

- 5      6. (a) Write a short note on the dental plaque under the following headings:  
               (i) Composition and properties  
               (ii) Significance in dental caries.
- 5      (b) List the major factors influencing the cariogenicity of a diet.
- 5      (c) Draw a graph illustrating the relationship between the pH in dental plaque (vertical axis) and time in minutes (horizontal axis) following a rinse with a concentrated glucose solution.
- 7      7. Discuss briefly fluoridation under the following headings:  
               (a) Dental benefits.
- 8      (b) Metabolism of fluorine in the human body.
- 15     8. Rearrange the items in Column II to match the appropriate items in Column I in your examination book.  
        (One mark is deducted for every incorrect answer)

COLUMN I	COLUMN II
Mucin	Characterized by presence of hydroxyproline
Collagen	Reduce solubility of enamel in acids
Eukeratins	Adsorbed by dental plaque
Carbonates in teeth	Affected by Ca/P ratio of diet
Lactobacillus acidophilus	Imparts lubrication properties to saliva
Sodium N-lauroyl Sarcosinate	Have a characteristic basic amino acid pattern
Pigmentation	Histological sign of proteolysis in enamel caries
Cross-striation	Histological sign of acid decalcification in enamel caries
Fluorides	Presence in saliva correlates with dental caries
Mucopolysaccharides	Chemical constituent of all calcified tissues



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UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

THIRD DENTAL YEAR

ORTHODONTICS

*Marks*

- 15      1. Be brief.  
          (a) Define "The clinical conception of the normal in Orthodontics".  
          (b) Name two factors in malocclusion which may affect the profile.  
          (c) Name the three main anatomical factors which may contribute to overjet.
- 25      2. Describe with a diagram a method of analysing the mesio-distal relationship of the jaws by means of a lateral cephalometric X-ray.
- 20      3. You examine two patients known to have enlarged adenoids. One is a mouthbreather and the other is not.  
          (a) Give the probable *cause* of the difference in the breathing physiology in these two patients.  
          (b) Enumerate the muscular changes in the mouthbreathing patient and describe the effects on the upper dental arch.  
          (c) At what stage of dental development would you prefer to discover that a patient is a mouthbreather? Why?
- 30      4. (a) What are the critical stages in the developing dentition when Class II molar relationship (distocclusion) is most likely to occur, other than from harmful oral habits?  
          (b) Discuss each of these stages briefly, giving reasons why the Class II molar relationship is produced.
- 10      5. (a) What parts make up the stomatognathic system?  
          (b) What are the principle functions of this system?





Candidate's Name .....

UNIVERSITY OF TORONTO

FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

THIRD DENTAL YEAR

PATHOLOGY

*Note: Questions 1, 2, 3, to be answered in examination book.  
Questions 4, 5, 6, to be answered on this question paper.  
Be sure to write your name on it and include it in your  
answer book.*

1. Name 5 types of cellular degeneration and enumerate the *main* cytological features of each.

2. (a) Give two examples of causes of hyperaemia of the lungs.

(b) When observing the capillary circulation of a living animal through the microscope, how can you distinguish between active and passive hyperaemia?

(c) How do you differentiate between haemorrhage and hyperaemia?

(d) How does extravasated blood affect the tissues at the site of a haemorrhage?

(e) How does a thrombus differ from a blood clot?

(f) What may the fate of a thrombus be?

(g) How are embolism and infarction related?

(h) Is a necrotic area necessarily present in infarction? Why?

(i) How does oedema differ from hydropic degeneration?

(j) Give two important clinical problems resulting from oedema.

3. (a) What is the significance of tenderness of regional lymph nodes in the presence of an infection?

(b) What non-cellular constituents of the blood contribute to local immunity?

(c) How long is the initial lesion of syphilis a local process?

(d) What type of exudate characterizes actinomycosis?

(e) How does cavitation influence the healing of a tuberculous lesion?

4. Indicate the correct or most appropriate answer from the 5 choices offered, by drawing a circle around its number.

(a) The majority of malignant tumours of the lip are:

1. Haemangioma
2. Melanoma
3. Epidermoid carcinoma
4. Basal-cell carcinoma
5. Sarcoma

(b) Giant cell epulis practically never occurs:

1. Between canines and premolars
2. Between premolars
3. Between central incisors
4. Between molars
5. In edentulous areas

(c) An ameloblastoma is discovered and removed surgically. One year later there is a recurrence. A biopsy is taken. The type of microscopic picture most likely to be found is:

1. Squamous-cell proliferation with pearl formation.
2. Basal-cell invasion.
3. Lymphoid tissue.
4. Fibrous proliferation.
5. Masses of epithelial cells with cystic appearance.

(d) An "indurated" lesion is one which is characterized by its:

1. Raised border
2. Inward growing tendency
3. Outward growing tendency
4. Depressed ulcer
5. Abnormal hardness

(e) Advanced basal-cell carcinoma almost always spreads and involves normal tissue through:

1. The lymphatics.
2. Direct extension.
3. Arterial blood.
4. Venous blood.
5. Nerve sheath.

5. Place the number of each item in the left-hand column after the appropriate term or terms in the right-hand column.

1. Heredity	Dentine hypoplasia	.....
2. Dilaceration	Enamel hypoplasia	.....
3. Hyperthyroidism	Reattachment	.....

4. Hypothyroidism	Sclerosis	.....
5. Dentinogenesis imperfecta	Root resorption	.....
6. Severe rickets	Discoloration	.....
7. Vitamin C	Anodontia	.....
8. Dental fluorosis	Trauma	.....
9. Attrition	Early eruption	.....
10. Replanted teeth	Myxoedema	.....

6. Place the number of each item in the left-hand column after the appropriate term or terms in the right-hand column.

1. Pregnancy tumour	Non-specific irritation	.....
2. Leukoplakia	Vesiculation	.....
3. Interstitial glossitis	Hyperkeratosis	.....
4. Granuloma pyogenicum	Hormonal imbalance	.....
5. Herpes simplex	Tertiary syphilis	.....
6. Acute pemphigus	Pigmentation	.....
7. Radiodermatitis	High mortality	.....
8. Pellagra	Potentially precancerous	.....
9. Pernicious anaemia	Atrophic glossitis	.....
10. Galvanism	Glossopyrosis	.....



THIRD DENTAL YEAR

PERIODONTICS

No Paper Available





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UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY  
ANNUAL EXAMINATIONS, 1956

THIRD DENTAL YEAR

PROSTHODONTICS

*Write legible and concise answers.*

*Marks*

- 15      1. Name and briefly describe the functions of the component parts of a removable partial denture.
- 20      2. Give a concise account of the effects on structure and function of the masticatory apparatus which result from the partial loss of teeth and their non-replacement within a reasonable lapse of time.
- 15      3. Describe in detail the procedure for rebasing a complete maxillary denture.
- 20      4. Having just completed the registration of jaw relations for an edentulous patient :
- (a) What records should you have?
- (b) Give the chairside sequence of obtaining these records.
- (c) What is the purpose of each record?
- 15      5. Following the preparation of two abutment teeth for a fixed bridge, outline the step by step procedure for making an impression using a reversible hydrocolloid material for its construction.
- 15      6. Describe, in sequence, the preparation of a maxillary first molar for a three-quarter veneer crown specifying the instruments employed for each step.



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THIRD DENTAL YEAR

SURGERY

1. Describe the various phases of the inflammatory reaction, outlining the purpose of each phenomenon observed.

2. Classify ulcers on a clinical basis and outline the characteristics of each class.

3. Enumerate the signs and symptoms of a fracture. What findings would make you suspect the presence of a fracture when a patient has just twisted his ankle badly?

4. Outline the general difference between carcinomata and sarcomata.

5. Enumerate and describe briefly the common lumps in the neck of congenital origin.





UNIVERSITY OF TORONTO

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ANNUAL EXAMINATIONS, 1956

FOURTH DENTAL YEAR

DENTAL PRAXIS

*Marks*

- 20 1. List five fundamental factors which have a direct influence on successful practice, and discuss one of them.
- 20 2. Discuss the distinguishing features between a profession and a trade.
- 20 3. "Carelessness on the part of the dentist in his relationship to dental laboratories leads to many problems." Discuss this statement.
- 20 4. (a) How would a patient evaluate a dentist's services?  
(b) What would be a fair fee for:  
(i) root canal therapy and filling  
(ii) a fixed bridge replacing a lower first molar  
(iii) prophylaxis.
- 20 5. (a) Illustrate a daily record sheet suitable for use in dental practice and indicate its value to the dentist.  
(b) Set up a method of keeping a business record of professional income and expenses on a monthly basis.  
(c) What practice expenditures would a dentist likely make that would not be considered practice overhead?



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FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

FOURTH DENTAL YEAR

DENTAL SURGERY AND ANESTHESIA  
AND ORAL SURGERY

1. (a) Define the term "cyst". Give your answer in 50 words or less.

(b) List 3 different types of odontogenic cysts found in the human jaws.

(c) Discuss these under the following two headings:—

(1) Symptoms.

(2) Treatment.

2. (a) Name 5 factors that might influence the displacement of the fragments in a fractured mandible.

(b) Discuss one of these factors briefly as it would apply to a fracture through the angle of the mandible. Assume that the posterior fragment is edentulous.

(c) How would you treat a fracture in the bicuspid area of a mandible? There is marked displacement but there is a good complement of teeth.

3. A thirty year old housewife presents with an acutely abscessed lower molar tooth, and is visibly nervous and upset. What would be your reasons for administering any or a combination of the drugs listed below? What would the likely dose be and what reaction would you expect from each?

(1) Sodium Pentobarbital (Nembutal).

(2) Hyoscine Hydrobromide (Scopolamine).

(3) Demerol.

(4) Injectable Aqueous Penicillin.

4. Discuss the removal of a badly hyper-cementosed lower bicuspid under the following headings:—

(1) Anesthesia.

(2) Surgical Procedure.

(3) Precautions to be observed.

5. Describe in detail the signs that would be exhibited by a patient during the surgical stage of nitrous oxide-oxygen-trilene anesthesia. No preoperative premedication was used.



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FOURTH DENTAL YEAR

MEDICINE

1. Discuss Subacute Bacterial Endocarditis under the following headings:—

- (a) Cause.
- (b) Clinical Manifestations.
- (c) Prevention.
- (d) Treatment.

2. Write a brief note on:—

- (a) Epilepsy.
- (b) Poliomyelitis.
- (c) Hodgkin's Disease.
- (d) Addison's Disease.

3. Discuss leukaemia under the following headings:—

- (a) Classification.
- (b) Oral manifestations.
- (c) Changes that occur in peripheral blood and bone marrow.
- (d) Treatment.

4. Describe the clinical manifestations and treatment of Congestive Heart Failure.

5. Name the two most common forms of arthritis and compare their clinical manifestations.

Discuss the role that dental disease may play in one of them.





## Operative Dentistry

UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY  
ANNUAL EXAMINATIONS, 1956  
FOURTH DENTAL YEAR  
OPERATIVE DENTISTRY

1. The extirpation of the vital pulp is a common operation in dental practice. Describe very briefly the procedure which you would follow to remove the pulp from a maxillary central incisor, and prepare the root canal for the reception of the initial dressing:

- (a) of a patient 7 years of age.
- (b) of a patient 14 years of age.
- (c) of a patient over 70 years of age.

2. (a) Enumerate the different procedures which make it possible for a dentist to compensate for gold shrinkage in making a dental casting.

(b) By means of a line drawing show how you would obtain ample retention in a lower 2nd. Bicuspid for a class *V* gold inlay where the cavity extends to the mesio buccal and disto buccal angles.

(c) Describe how you would cement this inlay.

(d) Give your method of placing a buccal or labial silicate restoration so that it is contoured and held under pressure.

3. (a) Give the principles involved in cavity preparation when the following filling materials are used:

- (a) Amalgam.
- (b) Gold Inlay.
- (c) Silicate.

(b) State briefly your method of establishing the proximal seat in a Class *II* restoration to minimize the damage to the approximating tooth.

(c) Give reasons why it is considered poor operative dentistry to prepare adjacent mesio-occlusal and disto-occlusal cavities for amalgam alloy fillings at the same appointment; also, give reasons why it is considered poor operative dentistry to fill adjacent mesio-occlusal and disto-occlusal cavities with amalgam alloy fillings at the same appointment.

4. Each step in the preparation of a tooth for a porcelain jacket crown is carried out with the idea of supporting the crown and also to prevent fracture. Name three (3) steps in the preparation, and by drawings show how each should be completed to achieve the maximum support.

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5. What effect on an amalgam alloy filling would result from the following:

- Excessive trituration,
- Insufficient trituration,
- Moisture contamination,
- Adding mercury after amalgamation,
- Burnishing the margins of a newly inserted filling,
- Attempting to polish the day of insertion,
- Frictional heat during polishing,
- Inadequate packing.





## Orthodontics & Pedodontics

UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY  
ANNUAL EXAMINATION, 1956  
FOURTH DENTAL YEAR  
ORTHODONTICS AND PEDODONTICS

*Answer Questions 1 and 2 in one book, Questions 4 to 7 in a second book.*

PART A—ORTHODONTICS  
*Include sketches in each answer.*

*Marks*

- 25     1. A patient age 8 years presented with the maxillary right central incisor in linguoversion and cross-bite. The lower anterior teeth are spaced and the overbite is approximately 3 millimeters.
- (a) What are some of the etiologic factors contributing to this malocclusion?
- (b) Describe a suitable method for the correction of this malocclusion.
- 25     2. Briefly outline the management of an orthodontics patient from initial examination to completed retention after treatment.

PART B—PEDODONTICS

*Answers should be concise and enumerated.*

- 14     3. Describe what the relationship of the upper six year molar to the lower six year molar will be at seven years of age when the following situations are seen in the deciduous dentition at four years of age.
- (a) a parallel terminal plane and a primate space in the lower
- (b) a parallel terminal plane and no primate space in the lower
- (c) distal step
- (d) mesial step.
- 4     4. It has been decided that in a child of three years of age, the lower right first and second deciduous molars must be removed and an intra-alveolar space maintainer constructed. Explain how you would determine at what point you place the intra-alveolar arm.

- 9      5. A medical history shows a child of four years to have a condition known as ectodermal dysplasia. Give five clinical signs associated with this condition.
- 9      6. It is a known fact that because of a genetic influence a boy four years of age has a condition known as Dentinogenesis Imperfecta.
- (a) What stage in the life cycle of the teeth is affected by this influence?
- (b) Describe the histological significance of this condition.
- 14     7. Discuss Acute Herpetic Gingivostomatitis under the following headings:
- (a) Definition
- (b) Enumerate
- (i) Oral signs
- (ii) Oral symptoms
- (iii) Extra oral and systemic signs and symptoms.



Prionodontes



# UNIVERSITY OF TORONTO

## FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

### FOURTH DENTAL YEAR

#### PERIODONTICS

A male patient, age 25, good health history, complains that his gums are tender to touch and that they bleed freely when the tooth-brush is used or when hard food is chewed. He reports that his gums have bled a little during brushing for the last three or four years, but there was never any obvious discomfort until five days ago. Swelling and tenderness had started about the left wisdom tooth and had extended to involve the gums in a number of areas about his mouth within twenty-four hours. He reports a foul taste in his mouth and enlarged tender glands below the angles of the lower jaw.

The patient had lived at home, as a farmer, until about six months ago. He is now employed on a night-shift in a machine shop. He lives in a rooming house and eats at irregular hours in restaurants. He reports that he has lacked his usual energy during the past few weeks.

Direct clinical examination reveals twenty-eight fully erupted, well-arranged teeth and a partially erupted lower left third molar. The three remaining third molars have never erupted according to the patient. The gingival margins are thickened, shiny, and obviously redder than normal. About half of the interdental gingival papillae are slightly shortened, blunt, and concave at the tip. On a few papillae there is a soft creamy mass of debris. These areas are tender and bleed freely when touched. A flap of gingival tissue over about half the occlusal surface of the left third molar is markedly swollen and tender to touch. The breath is foul. There are obvious amounts of soft debris and small amounts of supra-gingival and sub-gingival calculus. There are five proximal-surface cavities and interproximal food impaction is occurring regularly at two positions.

Numerous three and four millimeter pockets are present on the mesial and distal surfaces of the interdental papillae. Radiographic evidence shows slight cupping-out of the interdental alveolar processes. Most incisors, cuspids and bicuspid have abnormal mobility one degree. This is most noticeable under influence of triturating or grinding action of the teeth.

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There is three millimeters overbite and 0-2 overjet. At the limit of the right or left lateral excursions of occlusal function there is contact between upper and lower cuspids only. At these positions the bicuspid and molars of the working side are separated approximately 1 to 2 millimeters and the teeth of the balancing side are separated about three millimeters. At the incisal position the bicuspid and molars are separated approximately three millimeters.

*Marks*

- 10      1. What is the diagnosis
  - (a) of the acute condition?
  - (b) the preceding condition?
- 20      2. Outline concisely a case-management plan indicating clearly the main divisions of therapeutic procedures which you propose.
- 20      3. Describe the procedure and the criteria you would employ to arrive at an opinion concerning treatment for the third molars.
- 20      4. Outline the corrective procedure that you would advise concerning occlusal function.
- 20      5. Discuss concisely
  - (a) The significance of home care in this case.
  - (b) The procedures you would advise.
- 10      6. Enumerate briefly favorable effects of natural wear of the teeth.



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UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATION, 1956

FOURTH DENTAL YEAR

PREVENTIVE DENTISTRY AND DENTAL PUBLIC  
HEALTH

*(The answer to question 3 is to be written in a separate book).*

*Marks*

- 14     1. Lack of Iodine in the food leads to disturbances in the function of the Thyroid gland. How might these disturbances influence dentition?
- 14     2. Discuss one aspect of allergy that might occur in a dental practice.
- 30     3. Under the heading of 'Improved Dental Health in the Community' discuss briefly:
  - (a) The value of patient education in the dental office.
  - (b) The dentist's contribution in community organization.
  - (c) Preventive practice procedures contributing to community dental health.
- 14     4. Give "An evaluation of dentifrices in the prevention of dental caries and gingivitis".
- 14     5. Discuss the epidemiology of gingivitis and periodontal disease in children.
- 14     6. Consider the contributing resistance factors to the dental caries process.





## Prosthodontics

UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

FOURTH DENTAL YEAR

PROSTHODONTICS

*Write legible and concise answers.*

*Marks*

20 1. Discuss briefly the following terms related to Complete Denture Prosthesis:

- (a) Plane of orientation.
- (b) Vertical opening.
- (c) Centric relation.
- (d) Selective grinding.

20 2. (a) State the advantages and disadvantages of immediate complete denture service.

(b) Give an outline of a method for obtaining an impression of the maxilla, where the six anterior teeth are present.

20 3. Make sketches of suitable designs for removable partial dentures for the following semi-edentulous conditions (*use design stickers.*)

(a)

R	7	43	1234	L

The remaining teeth except the third molars are in good condition and in normal positions.

(b)

R	7	4321	1234	7 L

1		1
7		7

have mobility of plus 4 due to periodontal disease.

1		1
7		7

are tilted towards the mesial and lingual. The remaining teeth except the third molars are in normal positions, and in good condition.

- 20 4. A patient has lost the bicuspid and molars on both sides of the mandibular arch. The ridge is narrow and of the "knife-edge" type. The natural maxillary teeth are in position.

Explain the measures necessary to provide a removable partial denture which will limit the stress on the residual ridges and give the patient good function and comfort.

- 20 5. A patient, female, age 25 years, has been injured in an accident. On examination you find that the upper right central and lateral incisors have been lost and the mesio-incisal angle of the left central incisor has been fractured off as a result of the accident.

Give brief answers to the following:

- (a) What should be your initial procedures?
- (b) How would you make a temporary replacement?
- (c) How long would you wait before constructing a permanent fixed restoration? Give reasons.
- (d) Describe how the fixed replacement may be aesthetically constructed.



UNIVERSITY OF TORONTO

FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

FOURTH DENTAL YEAR

RADIOLOGY

1. What is meant by the term "Radiographic Interpretation"? Discuss the basic principles and the underlying requirements for the interpretation of radiographs.

2. Describe in detail the radiographic appearances of Dental Caries. Discuss the radiographic differentiation of dental caries and the conditions which may resemble it, but which are due to other conditions, normal and abnormal.

3. (a) What are the radiographic appearances which might suggest or indicate the presence of

(i) a fracture of the tooth?

(ii) a fracture of the jaw?

(b) What radiographic appearances may simulate a fracture but not be due to an injury? How may they be differentiated?

4. State what you know concerning "Periapical Osteofibrosis" (syn.—cementoma) and describe its radiographic appearances. What conditions have to be considered in the differential diagnosis and how are they differentiated?

5. (a) Discuss your method of taking a radiograph of the upper second molar region.

(b) What difficulties may be encountered in radiographing this region and how may they be overcome?





UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATION, 1956

FIRST YEAR DENTAL HYGIENE

DENTAL ANATOMY

*Answer each of the following questions.*

*Questions are worth equal marks.*

1. (a) What purposes does the primary dentition serve?  
(b) At what age might a child be expected to have the first of his primary teeth erupt?  
(c) At what age should the last primary tooth be lost?  
(d) In a column list the name of each type of primary tooth, and opposite each type place the name of the permanent tooth which replaces it.
2. (a) Describe the shape and name the boundaries of an interproximal space.  
(b) What tissue normally fills the space?  
(c) What is the result when the contour of the interproximal space is destroyed by calculus deposits, overhanging margins of fillings, etc.?
3. What are the anatomical differences between the maxillary first and second permanent molar teeth?
4. What is a pulp chamber? What is contained within it during life? Describe the alterations in its morphology which occur with advancing age.
5. Define each of the following:
  - (a) Cervical line
  - (b) Cementum
  - (c) Alveolus
  - (d) Cusp
  - (e) Fossa
  - (f) Cervical ridge
  - (g) Distal tooth surface
  - (h) Bifurcation
  - (i) Cutting arm
  - (j) Pit



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UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY  
ANNUAL EXAMINATION—MARCH, 1956  
FIRST YEAR DENTAL HYGIENE  
DENTAL RADIOGRAPHY

*Marks*

- 19     1. (a) What are the chief properties of X-rays?  
      (b) Define:  
          (i) Radiolucent.  
          (ii) Secondary Radiation.  
          (iii) Vertico-Horizontal Angulation.  
          (iv) Reduction.  
          (v) Chemical Fog.  
      (c) Name the causes for lack of contrast.
- 20     2. (a) Discuss briefly two methods of developing films.  
      (b) When mounting films, what anatomical appearances aid in distinguishing upper radiographs from lowers?  
      (c) Name the causes for abnormally dark films.
- 25     3. (a) Name and discuss the factors affecting the positioning of a film packet in the mouth.  
      (b) What are the requisites for successful interpretation of dental radiographs?
- 19     4. (a) Describe the technique for radiographing the upper second molar region under the following headings:  
          (i) Purpose.  
          (ii) Head position.  
          (iii) Film Preparation.  
          (iv) Position of the film in the mouth.  
          (v) Position of the tube.  
      (b) What is the head position for:  
          (i) The upper midline view?  
          (ii) The lower midline view?
- 17     5. (a) Define milliamperere-seconds. Over a two-week period, what is considered the maximum safe dose of radiation for:  
          (i) any one area?  
          (ii) any one individual?  
      (b) Name three forms of distortion. Assuming the head position was correct, what correction would you make in each case?  
      (c) What is the purpose of the upper first molar view?



UNIVERSITY OF TORONTO  
Faculty of Dentistry  
Faculty of Forestry  
Faculty of Pharmacy

Annual Examinations, 1956

FIRST YEAR - SECOND YEAR

ENGLISH COMPOSITION

Examiners: The Staff in English

In February, the Varsity conducted a poll of student opinion on various matters connected with higher education. Among the questions asked were the following:

1. What do you think the requirements for entrance to university should be?
2. What do you think of the Junior College idea?
3. Do you think technical and arts faculties should be on the same campus?
4. What do you think of the high school education university entrants receive?
5. What reforms would you propose in university and high school education?

In an essay of 750 to 1,000 words, present your answer to one of the above questions. Supply an appropriate title to the essay.





## English Literature

UNIVERSITY OF TORONTO  
Faculty of Dentistry  
Faculty of Forestry  
Faculty of Pharmacy

Annual Examinations, 1956

FIRST YEAR - SECOND YEAR

ENGLISH LITERATURE

Examiners: The Staff in English

Answer FOUR questions, Question 1 (20 marks), two questions from Part B (30 marks each), and one question from Part C (20 marks).

Part A

1. Briefly (i.e., in one paragraph) comment on the significance of each of the following for an understanding of the work in question:

a) The Bastard's soliloquy at the beginning of Act I, Scene ii of King Lear ("Thou, Nature, art my goddess ...")

b) The periodic references to the wasp in A Passage to India.

c) The experience of Angel Clare prior to his meeting with Tess Durbeyfield at Talbothays Dairy.

d) Either the lines from "The Love Song of J. Alfred Prufrock,"

In the room the women come and go  
Talking of Michelangelo

Or the lines from "Lines, composed a few miles above Tintern Abbey,"

These beauteous forms,  
Through a long absence, have not been to me  
As is a landscape to a blind man's eye:

Part B

2. By comparing St. Joan to one (or more) of the other three plays studied, give your reasons for describing it as a tragedy, or as a comedy, or as a tragic-comedy.

3. a) To what extent is the reader made conscious of the presence of the author in two of the following novels: Joseph Andrews, Tess of the D'urbervilles, A Passage to India?

3. b) How does the degree of author intrusion in each case affect the reader's response to character and situation?

4. Discuss one of the following poems in the light of the poetic principles laid down by Wordsworth in his Preface to Lyrical Ballads: "Fra Lippo Lippi", "Journey of the Magi", "Ode: Intimations of Immortality."

### Part C

5. Discuss Swift's treatment of the Houyhnhnms and the Yahoos, with particular reference to his conclusions about the nature of human beings.

6. "To appreciate Butler's Erewhon, it is necessary to have a close familiarity with life as it was led in Victorian England." Discuss the validity of this statement.

7. During the past three months, two controversies have been reported at length in the daily newspapers. One has concerned a proposal to introduce television cameras into the Peterborough Post Office as a means of insuring that the workers are honest. The second has concerned the banning of Little Black Sambo from the Toronto public schools. Explain what John Stuart Mill's position would have been on either of these questions.

8. What distinction does Arnold draw between literature and belles lettres? Illustrate Arnold's distinction by reference to the qualities of one of the texts you have studied this year.



## Food Chemistry

UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

FIRST YEAR—DENTAL HYGIENE

FOOD CHEMISTRY

*Examiners*—MR. G. FULLER  
MRS. J. SCOTT

1. (a) Write general structural formulae for:

(i) an aldehyde	(iv) an ester
(ii) a ketone	(v) an alkyne
(iii) a secondary alcohol	(vi) a triglyceride

(b) Write STRUCTURAL formulae for:

(i) oleic acid	(vi) acetone
(ii) butanol	(vii) oxalic acid
(iii) pentane	(viii) propene
(iv) ethyl acetate	(ix) formaldehyde
(v) dimethyl ether	(x) acrolein

(c) Distinguish between “neutralization” and “esterification”.
2. (a) What is meant by an “homologous series”? Illustrate your answer using as an example any homologous series you have studied.  
(b) Explain the following *briefly*:

(i) alpha amino group	(v) polyhydroxy compound
(ii) tertiary alcohol	(vi) hydrocarbon
(iii) peptide bond	(vii) denaturation of a protein
(iv) hydrolysis	(viii) hydrophilic
3. (a) Describe an experiment to illustrate saponification of a fat. Write equations which show the reaction taking place. Explain how you would know when saponification is complete.  
(b) Indicate how you would separate:

(i) a soap
(ii) a fatty acid, from the saponified material in 3(a).
4. (a) Explain what is meant by:

a ketose	an oligosaccharide
a pentose	milk sugar
a reducing sugar	blood sugar
glycogen	



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(b) What is Fehling's solution? Describe its use, indicating the reaction which takes place when (i) glucose is present and (ii) when sucrose is present.

5. (a) Suppose that you have consumed a glass of whole milk. For *each* type of food present (carbohydrate, protein, fat) trace it through the digestive tract, name the enzymes (in order of occurrence) affecting its digestion, indicating where the enzymes are found and naming the end products of the enzymatic reaction in each case. If desired, tabulate your answer.

(b) For *any one* food in 5(a), discuss its absorption.



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UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

FIRST YEAR DENTAL HYGIENE

GROSS ANATOMY

PART A—SYSTEMATIC ANATOMY

*Be relevant. Write legibly.*

- 67%      1. Name the four chambers of the heart and list all the openings into or out of each chamber, indicating the direction in which the blood flows.
2. Describe the gross anatomy of the kidney as seen in a coronal longitudinal section (or draw a large diagram and label fully).
3. (a) State the differences between arteries and veins.  
            (b) Name the five factors that aid in supporting a joint.
4. State the various uses of the muscles of the anterior abdominal wall.

PART B—ANATOMY OF THE HEAD AND NECK

*To be answered in a separate book.*

- 33%      1. A patient has an ache in the lower right lateral incisor tooth. Describe the course of the nerve impulses from within the pulp, until they enter the brain.
2. Give the location of the parotid gland, and tell how its secretion reaches the oral cavity.
3. Give the attachments of the mylohyoid muscle, and tell how it receives its motor innervation. What happens when this muscle contracts?



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UNIVERSITY OF TORONTO  
School of Physical and Health Education

Annual Examinations, 1956  
I Dental Hygiene

HEALTH EDUCATION

1. (a) Describe a typical synovial joint.  
(b) Illustrate the three types of joints(i.e. Lever systems) and give an example of each.
2. (a) Describe the bile passages.  
(b) Describe the stomach.
3. Name the great veins returning blood to the heart and indicate in general where their blood is coming from.
4. Give brief accounts of (a) the ureter  
(b) the hilum of the lung  
(c) the function of bone  
(d) the following movements:  
    circumduction, pronation &  
    supination, opposition.





UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

FIRST YEAR DENTAL HYGIENE

ORAL HISTOLOGY

*Marks*

- 25 1. Describe the microscopic structure of enamel. How much organic matter is present in mature enamel?
- 15 2. Describe the tissue components of the gingiva.
- 15 3. Describe the changes in the pulpal tissue that occur with age. State the functions of the pulp.
- 5 4. Which one of the following structures is most easily injured by incorrect scaling—enamel, dentin, cementum?
- 40 5. Write a brief note on each of the following:
  - dental lamina
  - reduced enamel epithelium
  - mesial drift
  - mucous membrane
  - Sharpey's fibers
  - secondary dentin
  - attrition
  - alveolar bone proper (lamina dura)
  - dentinal tubules
  - dental follicle (sac)



# Psychology

School of Nursing  
Division of Physical and Occupational Therapy  
Dental Hygiene  
Hospital Administration  
Institute of Child Study

Annual Examinations, 1956

PSYCHOLOGY 102

Examiner: R. C. Joyner

Candidates will write on any THREE questions. All questions are of equal value. No examination aids to be used.

1. How may the conceptions of family relationships held in our Canadian culture determine the nature of the psychological health problems we have and the means we choose for treating and preventing such problems?

2. State what is meant by man's needs for emotional security and mastery. Evaluate one experiment which purports to be relevant to emotional security and one experiment relevant to mastery.

3. What are the characteristics of the mental hygiene approach to human development? Give examples that illustrate how this approach may be used in your professional work.

4. Give examples indicating how the mental hygiene implications of the Preschool Period OR Young Adult Period OR the Period of Old Age may be relevant to your professional work or everyday living.

5. Write notes on any SIX of the following:

- (a) Hospitalization of the preschool child
- (b) Social development in the school age child
- (c) Pre-natal influence
- (d) Effects of prolonged food deprivation
- (e) One-way and two-way interpersonal communication
- (f) Differing maturing rates between the sexes in adolescence
- (g) Mother-child affection
- (h) Status
- (i) Recognition of assets and limitations in oneself and others

- (j) The 'phenomenological field.'
- (k) Appreciation of the causal sequence in behaviour
- (l) The validity of 'habit' and 'custom' as explanatory concepts in everyday face-to-face relationships.





UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

SECOND YEAR DENTAL HYGIENE

DENTAL HYGIENE AND ORAL PROPHYLAXIS

There are two main types of periodontal diseases which may be described as follows:

A—There is an even distribution of lesions about the whole mouth or areas of the mouth. Inflammation of the gingival tissue is a striking characteristic. There are obvious amounts of materia alba and calculus. There are numerous shallow periodontal pockets in the interproximal areas. There is very little abnormal mobility of the teeth.

B—The lesions are unevenly distributed. There is little inflammatory reaction of the gingival tissue. Oral hygiene may be good. The periodontal pockets are deep and there is often obvious abnormal mobility of the teeth.

*Marks*

- 5      1. Name the types of periodontal disease described above.
- 5      2. For which of these types of periodontal disease may the hygienist provide a major portion of the treatment procedures?
- 5      3. What classification of pocket is common in this type of periodontal disease?
- 10     4. What principles are useful in reducing the depth of such pockets?
- 15     5. List concisely common methods of treatment that are employed in the application of these principles.
- 10     6. State concisely what phases of treatment procedures the hygienist may perform in this type of case.
- 10     7. State concisely the desirable effects that may be produced by using a medicated pack in the treatment of such pockets.
- 20     8. In counselling the patient following the treatment procedures described in question six what phases of the home care of the mouth would you stress and why?
- 20     9. Give a classification of types of scalers using drawings and state the most efficient application of each type.



## Dental Public Health

UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY  
ANNUAL EXAMINATIONS, 1956  
DENTAL HYGIENE II  
DENTAL PUBLIC HEALTH

*Marks*

- 20     1. The present-day concept of public health has resulted in certain principles of public health procedure. State briefly—  
      (*a*) What historical events have influenced the trends toward present-day practices.  
      (*b*) Enumerate and explain three principles of prime importance in public health procedure.
- 10     2. Under what legislation would the following dental programmes be established?  
      (*a*) Dental services to mariners or immigrants detained in quarantine hospitals.  
      (*b*) Dental services in Wellington County Health Unit (Ontario).  
      (*c*) Dental care of Ojibway Indian school children.  
      (*d*) Dental care in provincial mental hospitals.  
      (*e*) Dental services in unorganized northern Ontario territory by use of railway dental car.
- 15     3. Discuss briefly Dental Public Health activity in the community under the following headings:  
      (*a*) Terms of reference governing Dental Public Health activity.  
      (*b*) Auspices under which programmes may operate.  
      (*c*) Types of programmes and factors which may influence the services provided.
- 30     4. (*a*) Prior to conducting a dental survey in the schools of a small city, certain preliminary arrangements must be made. Describe these arrangements in terms of:  
          (*i*) Initial contacts.  
          (*ii*) Physical requirements, supplies and equipment.  
          (*iii*) Practising dentists.  
          (*iv*) School personnel.

(b) Write short notes on three of the following:

(i) Sampling—its purposes and requirements.

(ii) D.M.F. Index.

(iii) Diagrams employed to illustrate statistical information.

(iv) Sources of statistical data—case histories, census, registration, surveys.

10 5. List the primary requirements which enter into good public relations in public health work.

15 6. A dental examination of the children in the community where you are employed has shown that the caries incidence is very high. You are asked to outline an effective educational programme. Under this topic discuss briefly—

(a) The media and methods you might use in this project.

(b) The preparation of an outline for a class-room lesson you consider important to use.

(c) Your advice to a mother of a pre-school age child who is attending a child health clinic.







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UNIVERSITY OF TORONTO  
Faculty of Dentistry  
II Year, Dental Hygiene Course  
Annual Examinations, Session 1955-56

INFECTION AND IMMUNITY

1. (a) Outline the procedure you would employ to obtain a pure culture from a mixture of several kinds of bacteria suspended in broth.  
(b) How could you determine whether the procedure was effective?
2. (a) Of what practical importance is the ability of bacteria to form spores?  
(b) How could you determine whether a given procedure for the sterilization of syringes is effective in destroying spores?
3. Outline briefly an experiment designed to compare the effectiveness of two disinfectants applied to the skin.
4. Outline briefly the preparation of vaccinia virus.
5. (a) What is B.C.G.?  
(b) What groups of the population should receive B.C.G., and to what extent can they be expected to benefit from it?
6. (a) What is tuberculin?  
(b) What information is gained by the use of the tuberculin test?
7. (a) Outline briefly the preparation of diphtheria toxin.  
(b) How is toxin converted into toxoid?
8. (a) Outline a satisfactory schedule of immunization against diphtheria.  
(b) At what intervals and in what amounts should reinforcing doses be given?
9. What disease-producing bacteria are commonly found in the nose and throat?
10. What qualities are desirable in a disinfectant for dental instruments?
11. What disease-producing bacteria are transmitted by polluted water?
12. (a) What materials are required for the satisfactory chlorination of water?  
(b) How would you obtain or prepare them?
13. (a) How would you determine the amount of chlorine required for the chlorination of 100 gallons of water?  
(b) Apart from the bacterial content, why does water from some sources require more chlorine than from others?



14. (a) What micro-organism does one look for in the bacteriological examination of water?  
(b) What does its presence signify?
15. What disease-producing bacteria may be present in raw milk?
- 16 (a) What is meant by the term "agglutination"?  
(b) Give an example of a disease in which agglutination is used as a diagnostic test.
17. (a) What is the basic principle of Gram's stain?  
(b) Why is it commonly employed in the identification of bacteria?
18. (a) How may a culture isolated from a patient be tested for sensitivity to penicillin and other antibiotics?  
(b) Of what practical importance is this test?
19. (a) In the grouping of blood for transfusion, what part of the blood contains the antigen?  
(b) In what blood groups may agglutinins for group B be found?
20. (a) At what age should a child be immunized against whooping cough?  
(b) Why is it important for the child to be immunized at this age?

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UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATION—MARCH, 1956

SECOND YEAR DENTAL HYGIENE

PATHOLOGY

1. List and briefly describe the signs and symptoms of simple marginal gingivitis.
2. Describe the interrelationship between embolism, infarction, and thrombosis.
3. Give a concise definition for the following terms:—
  - (a) Atrophy
  - (b) Hypertrophy
  - (c) Hyperplasia
  - (d) Hypoplasia
  - (e) Aplasia.
4. Briefly describe the various possible changes that may occur in a dental pulp as the result of its irritation.
5. List ten aetiologic factors of neoplasms and indicate their mode of action.





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UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATION, 1956

SECOND YEAR DENTAL HYGIENE

PHARMACOLOGY

1. Classify the following drugs:
  - (a) Demerol
  - (b) Codeine
  - (c) Epinephrine
  - (d) Atropine
  - (e) Coramine
  - (f) Caffeine and Sodium Benzoate
  - (g) Streptomycin
  - (h) Morphine
  - (i) Procaine
2. List the barbiturates according to rapidity of action.
3. List five properties of a good local anaesthetic.
4. Name three drugs used in Dentistry for sterilizing instruments.
5. (a) What drug is commonly used with procaine?  
(b) Why?
6. (a) What is "ether"?  
(b) Name the general anaesthetic agents.
7. Name the methods of administering drugs in the order of their rapidity of action.
8. How would you answer the question "what dentifrice should I use"?



UNIVERSITY OF TORONTO  
Faculty of Medicine

137  
Division of Physical and Occupational Therapy  
and  
The Faculty of Dentistry

Annual Examinations, 1956 - Dental Hygiene II

PHYSIOLOGY

NOTE: Candidates shall answer question 1, any two from questions 2, 3 & 4 and any two from questions 5, 6 & 7. Five questions constitute a complete paper. Please write legibly and use diagrams where appropriate.

1. Briefly define the following terms:- Calorie; cyanosis; RH factor; adrenaline; amino-acid; carbonic anhydrase; vitamin B12; threshold; respiratory quotient; tri-iodothyronine
2. Discuss the physiology of the erythrocyte under the following headings:
  - (a) structure
  - (b) functions
  - (c) origin
  - (d) Factors influencing number per ml. of blood
  - (e) fate
3. (a) What happens to heart rate and stroke volume during exercise?
  - (b) Outline the part played by nervous reflexes in bringing about the changes described in (a)
  - (c) List the factors responsible for return of blood to the heart.
4. Outline the functions of the liver.
5. (a) Describe briefly the symptoms associated with a discrepancy between the need for insulin and its supply by the body.
  - (b) What is the Hering-Breuer reflex? Describe in detail its role in the physiology of the body.
6. Write a brief note on each of the following:-
  - (a) The chemical nature and physiological action of materials elaborated by the adrenal cortex.
  - (b) The role played by each part of the renal nephron in the formation of urine.
7. (a) 1. Describe the main subdivisions of lung air, giving the volumes of each.
  2. What factors affect the vital capacity?
  - (b) What hormones are concerned with the normal cyclic sexual activity of the human female? Discuss the part played by each hormone.



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UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

SECOND YEAR DENTAL HYGIENE

PREVENTIVE DENTISTRY

1. Discuss the use of fluorides in the control of dental caries.
2. Discuss Space Maintenance under the following headings:
  - (a) Under what conditions would a space maintainer be necessary to replace a first deciduous molar which has been lost prematurely?
  - (b) Under what conditions would a space maintainer not be necessary to replace a second deciduous molar lost prematurely?
  - (c) Why is it necessary to replace upper deciduous central incisors lost at the age of three?
3. (a) Discuss each of the food groups in Canada's Food Rules from the standpoint of:
  - (1) Contribution of nutrients.
  - (2) Relative cost of foods.
  - (3) Individual foods in each group.

(b) Describe the use of Canada's food rules in diet consultations with patients.
4. People who wish to reduce body weight are advised frequently to eat less fat. Briefly discuss the suitability of this advice with particular reference to, (a) reasons for a moderate intake of fat, and (b) causes of overweight.
5. Briefly outline the role of the hygienist in the Orthodontist's Office.







UNIVERSITY OF TORONTO  
School of Social Work

ANNUAL EXAMINATIONS. JANUARY, 1956

S.W. 1 - The Field of Social Welfare

Candidates will answer Questions 1, and any two other questions, three in all.

1. Select three reading references which you have used for this course, and indicate how each was helpful.
2. (a) What are the objectives of social security services in a country such as Canada?  
  
(b) How well does our Canadian scheme achieve these objectives?  
  
(c) What changes would you like to see made in it, and why are these desirable?
3. In your opinion what are the three most important social services in Canada supporting family life? Why?
4. Write brief descriptions of any three of the following topics:
  - (a) Family Allowances
  - (b) The Community Chest
  - (c) Child Protection
  - (d) Housing in Relation to Family Welfare.

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UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

DENTAL NURSING

DENTAL MATERIALS AND TECHNOLOGY

1. Discuss the chemico-physical factors involved in the setting of gypsum products, giving special attention to manipulative variables.
2. Compare alginate and agar impression materials.
3. List the properties of methacrylates, and the dental uses that are based on each property.
4. Outline an indirect gold inlay technique.



UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

DENTAL NURSING

DENTAL RADIOGRAPHY

1. (a) Define; Dental radiograph.  
(b) With the aid of a labelled diagram, describe the production of x-rays.  
(c) What specific properties possessed by x-rays make them of value in the diagnosis of disease?
2. (a) Distinguish between; radiopaque, radiolucent and radioparent.  
(b) Describe briefly the film packet as is used in a full-mouth survey.  
(c) List types of x-ray film used in Dentistry.
3. (a) Distinguish between the terms "processing" and "developing" as they pertain to radiography.  
(b) Describe two accepted methods of processing x-ray films.  
(c) Why is lead used in manufacturing receptacles to store x-ray film?
4. (a) List two anatomical characteristics that would distinguish the images on a periapical radiograph of the upper incisor region from a radiograph of the lower incisor region.  
(b) List two causes for each of the following conditions that might be found on a film that you are mounting.
  - (i) very dark.
  - (ii) no image.
  - (iii) blurred image.
  - (iv) partial image.
5. (a) What teeth should be included on the upper incisor median view of a full mouth survey?  
(b) What is the angulation of the cone of an x-ray machine for the average case of an upper incisor median view.  
(c) List the three essential features that must be present in the completed bite-wing radiograph.





UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

DENTAL NURSING

DENTAL SURGERY ASSISTANCE

1. (a) Name the three anatomical varieties of hemorrhage  
(b) Name the three types of hemorrhage  
(c) Name some of the hemostatic agents used in dentistry to control hemorrhage
2. Give the pre-operative and post-operative care of a patient for general anaesthesia.
3. Classify the following drugs and suggest the dosage where indicated:
  - (a) Codeine phosphate
  - (b) Seconal
  - (c) Sodium pentothal
  - (d) Penicillin
  - (e) Epinephrine
  - (f) Zylocaine
4. Write a brief description of the following terms:
  - (a) Alveolectomy
  - (b) Hypertrophied tissue
  - (c) Frenum
  - (d) Apicoectomy
5. Discuss briefly the method or methods of determining the temperature, pulse and respiration of a patient, and the normal limits of each.



UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY  
ANNUAL EXAMINATIONS, 1956  
DENTAL NURSING  
ETHICS AND JURISPRUDENCE

*Marks*

- 25     1. Discuss Conduct in the Dental Office under the following headings:
- (a) The Nurse as a Receptionist
  - (b) The use of the Telephone
  - (c) Courtesy
  - (d) Dependability
  - (e) Common Sense
- 25     2. List and discuss briefly five important ethical points for the Dental Nurse to observe.
- 25     3. Define Jurisprudence and discuss four rules with respect to Jurisprudence as they apply to Dental Nursing.
- 25     4. Enumerate and discuss briefly the important factors necessary in holding a position.



UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

DENTAL NURSING

OPERATIVE DENTISTRY ASSISTANCE

*Marks*

- 20 1. Give the classification and one use in Dentistry of the following drugs: Phenol, Metaphen, Alcohol, Tincture of iodine, Sodium bicarbonate, Solution of formaldehyde, Glycerin, Oil of cloves, Tannic acid, Sodium chloride.
- 20 2. How can a Dental Nurse assist during the following operations:
- (a) A root canal filling.
  - (b) A silicate cement filling.
  - (c) A silver amalgam filling.
  - (d) A setting of a gold bridge.
- 20 3. Write brief notes on:
- (a) The making of dental appointments and the use of the telephone in a dental office.
  - (b) The steps that should be taken to prevent the transmission of disease in a dental office.
- 20 4. (a) List the hand instruments used in cavity preparation and describe four of them with the use of diagrams.
- (b) A dental hand instrument is numbered as follows:
- 20  
(95)  
9  
12  
R
- Describe what these numbers indicate.
- 20 5. Discuss the preparation necessary in the Dental Office prior to the admission of the first patient of the day.





UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

DENTAL NURSING

ORAL HYGIENE AND PREVENTIVE DENTISTRY

1. Describe the function of the suprarenal gland.
2. Discuss the essential etiologic factors in the production of dental caries.
3. What instruction should be given to the mother and the child in the care of the child's teeth?
4. Name and briefly discuss each of the mineral elements and vitamins which might be deficient in a patient's diet.
5. List Canada's Food Rules. Explain why each food group is present.



## Principles of Accounting

UNIVERSITY OF TORONTO  
FACULTY OF DENTISTRY

ANNUAL EXAMINATIONS, 1956

THIRD DENTAL YEAR

DENTAL NURSING

PRINCIPLES OF ACCOUNTING

*Marks*

- 25      1. Prepare a balance sheet for the McLain Trucking Company, owned by William N. McLain. Date the balance sheet September 30 of this year. On that date Mr. McLain's records showed the following assets and liabilities:
- (a) Cash, \$1,757.30
  - (b) A. M. Hartwell (a customer), \$50
  - (c) L. S. Jones (a customer), \$75
  - (d) Office Furniture, \$150
  - (e) Trucking Equipment, \$4,575
  - (f) Glenn Service Station (a creditor), \$1,530
  - (g) Motor Equipment Company (a creditor), \$60.12
- 75      2. Dr. J. O. Bosworth, dentist, maintains a bookkeeping system similar to the one we have been using. All payments were made by cheque, the first cheque for December 1 being No. 202. The transactions completed by Dr. Bosworth during December were:
- December 1.    Paid the December rent, \$100
- 3.    Paid Physicians' Linen Service Company \$5.25 for linen service.
  - 4.    Paid telephone bill, \$5.75
  - 5.    Paid X-Ray Sales Company \$50 on Furniture & Fixtures Account.
  - 7.    Deposited \$233, the receipts for the past week.
  - 8.    Withdrew \$100 for personal use.
  - 9.    Paid Johnson Drug Company \$25 for dental supplies.
  - 14.   Deposited \$178.50, the receipts for the past week.
  - 15.   Paid Joan Blythe, dental nurse, her semimonthly salary of \$90 less deductions of \$7.60 for income tax withheld and 90 cents for unemployment insurance.

17. Replenished the petty cash fund with a cheque for \$37.25. The distribution was as follows: Dental supplies, \$12.35; Automobile Expense, \$15.93 (charge to withdrawals); Office Supplies, \$4.87; General Expense, \$4.10
  19. Paid Wilson Stationery Company \$12.75 for letterheads.
  20. Paid Hydro bill \$6.50; Consumers' Gas Company \$4.50
  21. Paid Willis Furniture Company \$18.50 for refinishing desk. Deposited \$194.75, the receipts for the past week.
  22. Withdrew \$100 for personal use.
  24. Paid Smith Dental Company \$13.85 for dental supplies.
  25. Paid Harris Laboratories, \$30 for services rendered (Charge Laboratory Expense.)
  26. Deposited \$138.50, the receipts for past week.
  31. Paid Joan Blythe her semimonthly salary of \$90 less deductions of \$7.60 for income tax withheld and 90 cents for unemployment insurance. Personal withdrawal of \$100; deposited \$308, the receipts for past week. Replenished the petty cash fund with a cheque for \$39.95. The distribution was as follows: Dental Supplies, \$21.30; Office Supplies, \$17.55; Miscellaneous Expense, \$1.10
- Estimated dental supplies used: \$50  
 Depreciation on Equipment: 30  
 Bank Balance as of December 1, \$854.30  
 Keep supplementary ledger for payroll







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be renewed if there is no  
reservation for it.

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